

Claims

1. Filling- and/or charge-amount-monitoring method for at least one reservoir for at least intermittent accommodation of at least one fluid in a cooking device with an inner casing, comprising a cooking chamber with at least one fluid inlet and at least one fluid outlet, a ventilation device, comprising at least one fan in the inner casing, at least one drive shaft for the fan and at least one motor for the drive shaft, for the circulation of at least a part of the fluid at least in the inner casing and a control or regulation device cooperating with the ventilation device and/or a filling- and/or charge-amount-monitoring device, characterized by the fact that
at least one change in a characteristic parameter of the ventilation device due to the action of force of the amount of fluid incident on the fan is evaluated by the filling- and/or charge-amount-monitoring device.
2. Method according to Claim 1, characterized by the fact that
the rotation speed, the rotation speed fluctuation, the power consumption, the power consumption fluctuation, the current consumption and/or the current consumption fluctuation of the ventilation device is/are determined at least intermittently as characteristic parameter for monitoring the filling and/or charge-amount.
3. Method according to Claim 1 or 2, characterized by the fact that
at least a part of the fluid is circulated at least in the inner casing through at least one pumping device, whereby preferably the pumping device is pulsed.
4. Method according to Claim 3, characterized by the fact that
at a time point t_0 the pumping device is turned on,
at a time point t_1 a reduction of the rotation speed of the fan due to the amount of fluid incident on the fan is detected, whereby preferably this reduction of the rotation speed is then compensated by the motor at least partly by increasing power consumption,
at a time point t_2 the pumping device is turned off,
at a time point t_3 an increase of the rotation speed is detected especially due to the said compensation by the motor, and
the filling- and/or charge-amount and/or a change of these is/are determined from the time difference $t_3 - t_1$.

5. Method according to one of Claims 2 to 4, characterized by the fact that an upper limiting value of the rotation speed and/or a lower limiting value of the rotation speed is/are determined, preferably as a function of the pulsing of the pumping device, of the amount of fluid introduced into the inner casing, of the amount of fluid removed from the inner casing, of the dimension of the cooking device, of the accessories in the cooking device and/or of the loading of the inner casing with cooking product.
6. Method according to Claim 5, characterized by the fact that a time difference is determined from the time span between when the time when the value goes below a lower limiting value and when the value goes above the upper limiting value, preferably as a function of the pulsing of the pumping device, for the purpose of filling-and/or charge-amount-monitoring.
7. Method according to one of the previous claims, characterized by the fact that, as a function of a detected filling- and/or charge-amount, at least one device for the introduction of fluid to the inner casing and/or at least one device for removing fluid from the inner casing is/are adjusted, preferably controlled or regulated.
8. Cooking device (1) with
 - an inner casing (2), comprising a cooking chamber with at least one fluid inlet and at least one fluid outlet,
 - a ventilation device, comprising at least one fan (3) in the inner casing (2), at least one drive shaft (4) for the fan (3), and at least one motor (5) for the drive shaft (4) for the circulation of at least a part of at least one fluid (19) at least in the inner casing (2),
 - at least one reservoir (10) for the at least intermittent accommodation of at least the fluid (19) with at least one fluid inlet and at least one fluid outlet,
 - a filling- and/or charge-amount-monitoring device (5, 8) for the reservoir (10) and a control or regulation device (8) cooperating with the ventilation device (5) and/or the filling- and/or charge-amount-monitoring device (5, 8), characterized by the fact that the filling- and/or charge-monitoring device (5, 8) is cooperating with the ventilation device (3, 4, 5) for the determination of at least one parameter characteristic for the amount of fluid incident on the fan (3).
9. Cooking device according to Claim 8, characterized by the fact that the motor (5), preferably in the form of an electrically commutated motor, cooperates with the control- or regulation device (8).

10. Cooking device according to Claim 8 or 9, characterized by at least one pumping device (11) for circulating at least a part of the fluid at least in the inner casing (2), preferably cooperating with the control- or regulation device (8) to adjust the pump output and/or the pulsing of the pumping device (11).
11. Cooking device according to one of the previous claims, characterized by the fact that the characteristic parameter can be determined by evaluation of the rotation speed, of the rotation speed fluctuation, of the power consumption, of the power consumption fluctuation, of the current consumption and/or of the current consumption fluctuation.
12. Cooking device according to Claim 10 or 11, characterized by the fact that in the determination of the characteristic parameter, the pulsing of the pumping device (11) can be taken into consideration, preferably the time span between a first reduction of the rotation speed after turning on the pumping device (11) and a first increase of the rotation speed after turning off the pumping device (11), especially during a pulse, can be evaluated.
13. Cooking device according to one of Claims 8 to 12, characterized by the fact that the fluid (19) comprises water in the liquid and/or vapor form and/or a washing liquor.
14. Cooking device according to one of Claims 8 to 13, characterized by the fact that the reservoir (10) is provided in the inner casing, in a quenching chamber (10) and/or in a boiler of a steam generator.
15. Cooking device according to Claim 14, characterized by the fact that the inner casing (2) can be filled through a first fluid inlet cooperating with the quenching chamber (10), a second fluid inlet cooperating with the boiler and/or a third fluid inlet cooperating with a water line.
16. Cooking device according to Claim 14 or 15, characterized by the fact that the quenching chamber (10) can be filled through a fourth fluid inlet cooperating with the inner casing (2), a fifth fluid inlet cooperating with the boiler and/or a sixth fluid inlet cooperating with a water line (15).
17. Cooking device according to one of Claims 14 to 16, characterized by the fact that the boiler can be filled through a seventh fluid inlet cooperating with the inner casing, an

eighth fluid inlet cooperating with the quenching chamber and/or a ninth fluid inlet cooperating with a water line.

18. Cooking device according to one of Claims 15 to 17, characterized by the fact that the first fluid inlet is cooperating with a first shut-off device and/or pumping device (11), the second fluid inlet is cooperating with a second shut-off device and/or pumping device, the third fluid inlet is cooperating with a third shut-off device and/or pumping device, the fourth fluid inlet is cooperating with a fourth shut-off device and/or pumping device, the fifth fluid inlet is cooperating with a fifth shut-off device and/or pumping device, the sixth fluid inlet is cooperating with a sixth shut-off device (16) and/or pumping device, the seventh fluid inlet is cooperating with a seventh shut-off device and/or pumping device, the eighth fluid inlet is cooperating with an eighth shut-off device and/or pumping device, and/or the ninth fluid inlet is cooperating with a ninth shut-off device and/or pumping device.
19. Cooking device according to one of Claims 14 to 18, characterized by the fact that the inner casing (2) can be emptied through a first fluid outlet cooperating with the quenching chamber (10), a second fluid outlet cooperating with the boiler and/or a third fluid outlet cooperating with a water discharge.
20. Cooking device according to one of Claims 14 to 19, characterized by the fact that the quenching chamber (10) can be emptied through a fourth fluid outlet cooperating with the inner casing, a fifth fluid outlet cooperating with the boiler and/or a sixth fluid outlet cooperating with a water discharge (24).
21. Cooking device according to one of Claims 14 to 20, characterized by the fact that the boiler can be emptied through a seventh fluid outlet cooperating with the inner casing, an eighth fluid outlet cooperating with the quenching chamber and/or a ninth fluid outlet cooperating with a water discharge.
22. Cooking device according to one of Claims 19 to 21, characterized by the fact that the first fluid outlet is cooperating with a tenth shut-off device and/or pumping device, the second fluid outlet is cooperating with an eleventh shut-off device and/or pumping device, the third fluid outlet is cooperating with a twelfth shut-off device and/or pumping device, the fourth fluid outlet is cooperating with a thirteenth shut-off device and/or pumping device, the fifth fluid outlet is cooperating with a fourteenth shut-off device and/or pumping device, the sixth fluid outlet is cooperating with a fifteenth shut-off device (21) and/or pumping device, the

seventh fluid outlet is cooperating with a sixteenth shut-off device and/or pumping device, the eighth fluid outlet is cooperating with a seventeenth shut-off device and/or pumping device, and/or the ninth fluid outlet is cooperating with an eighteenth shut-off device and/or pumping device.

23. Cooking device according to one of Claims 18 to 22, characterized by the fact that the first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth and/or eighteenth shut-off device (16, 21) comprise/comprises at least one valve (16, 21).
24. Cooking device according to one of Claims 18 to 23, characterized by the fact that the first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth and/or eighteenth shut-off device (16, 21) and/or pumping device (11) can be actuated through the control- or regulation device (8), especially always as a function of a comparison of the actual value of the characteristic parameter with at least one target value for the characteristic parameter.
25. Cooking device according to Claim 24, characterized by the fact that the pulse ratio of the first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth and/or eighteenth shut-off device (16, 21) and/or pumping device (11) can be adjusted, especially controlled or regulated through the control- or regulation device (8).
26. Cooking device according to one of Claims 8 to 25, characterized by the fact that the filling- and/or charge-amount-monitoring device (5, 8) comprises the ventilation device (5) and the control- and/or regulation device (8) at least partly, whereby the filling- and/or charge-amount-monitoring device preferably also comprises the first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth and/or eighteenth shut-off device and/or pumping device.